

Fig. 2

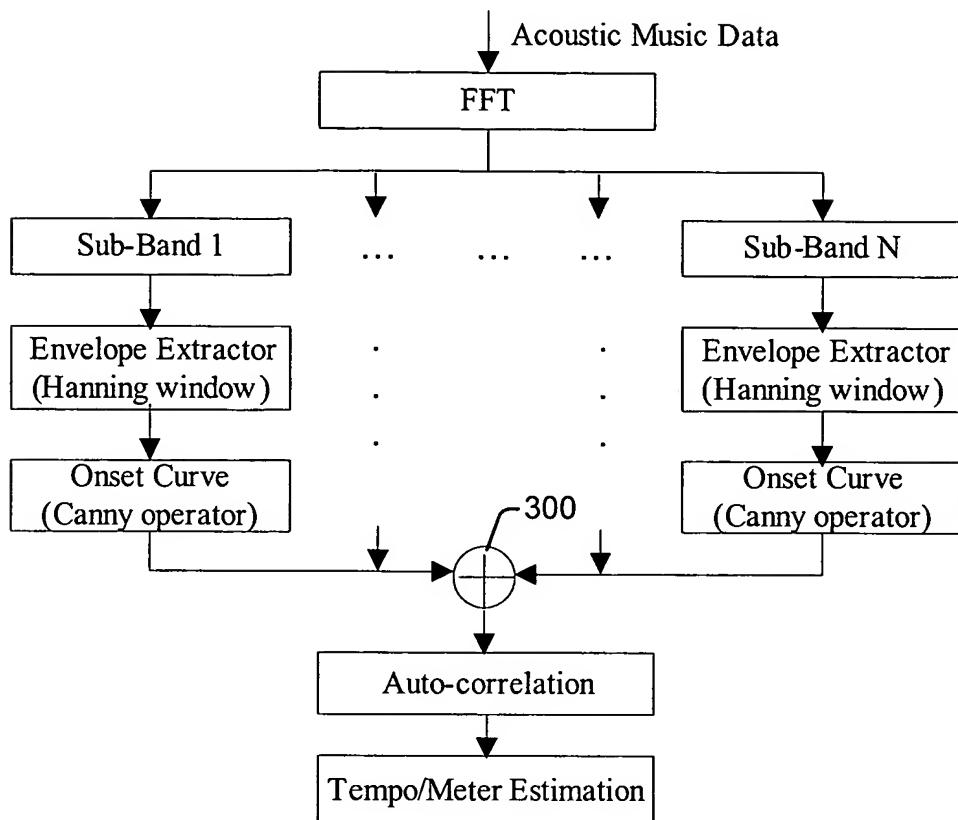


Fig. 3

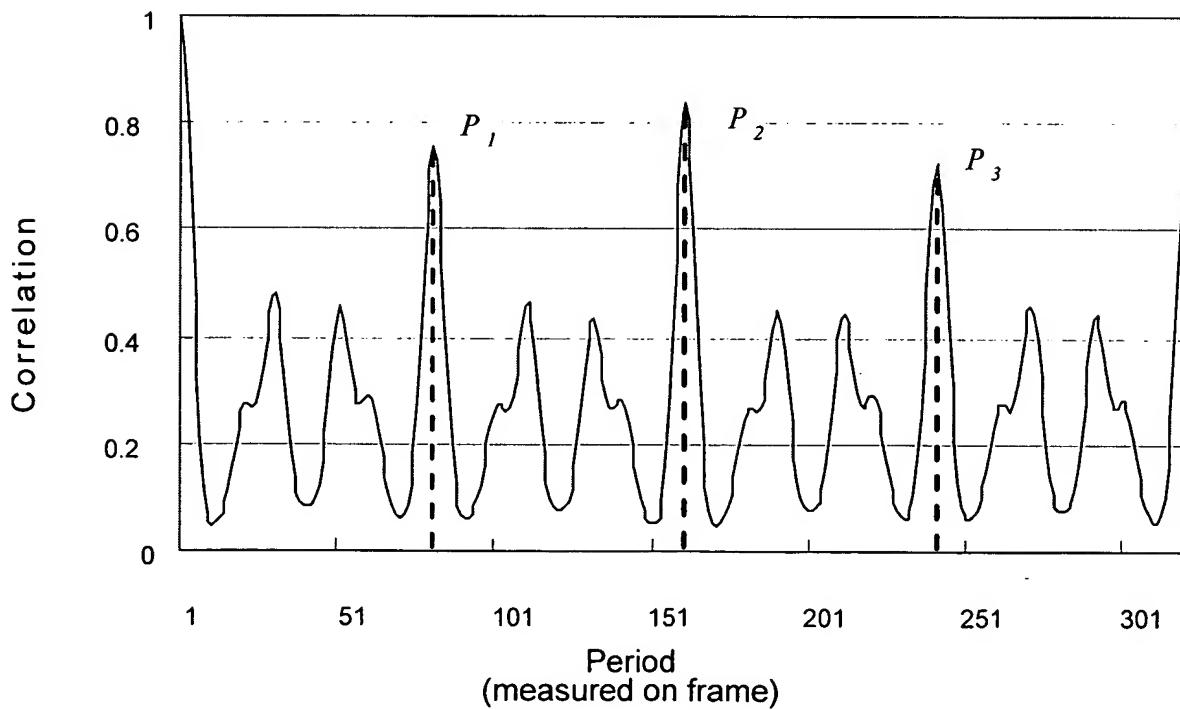


Fig. 4

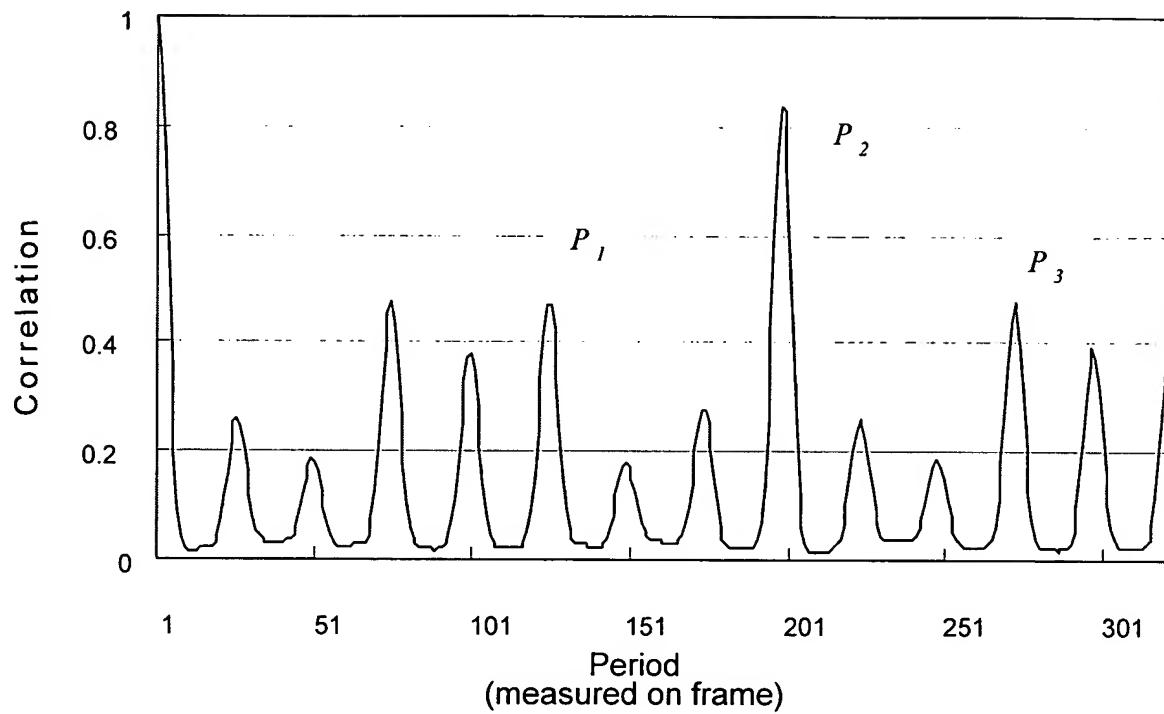


Fig. 5

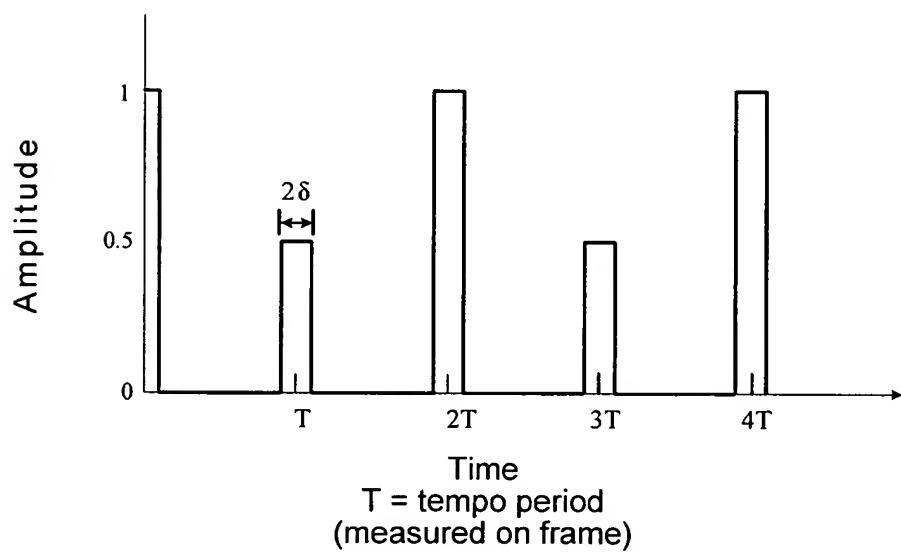


Fig. 6

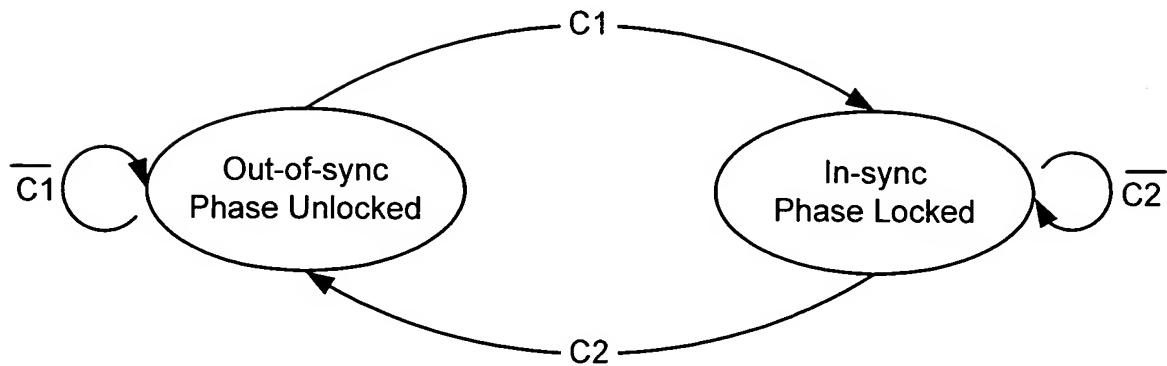


Fig. 7

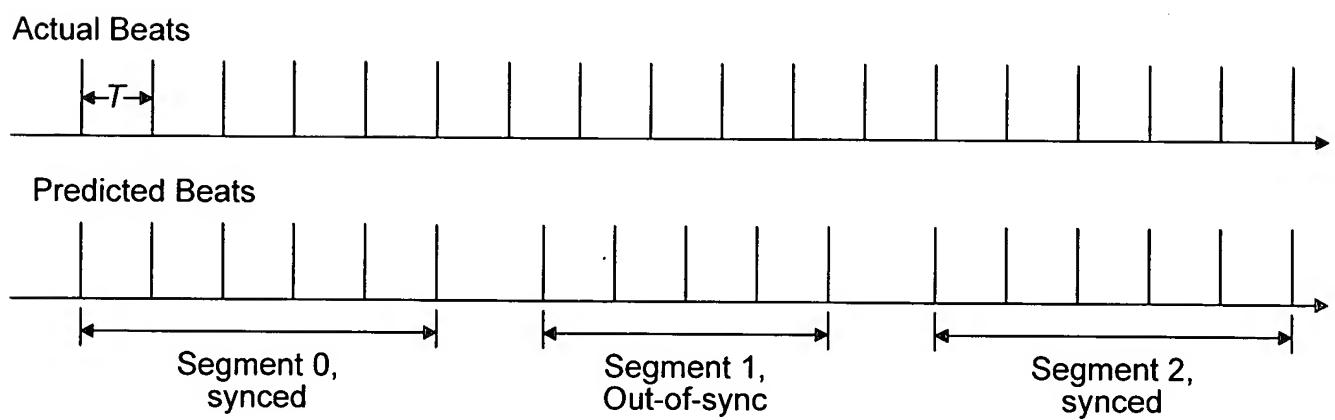


Fig. 8

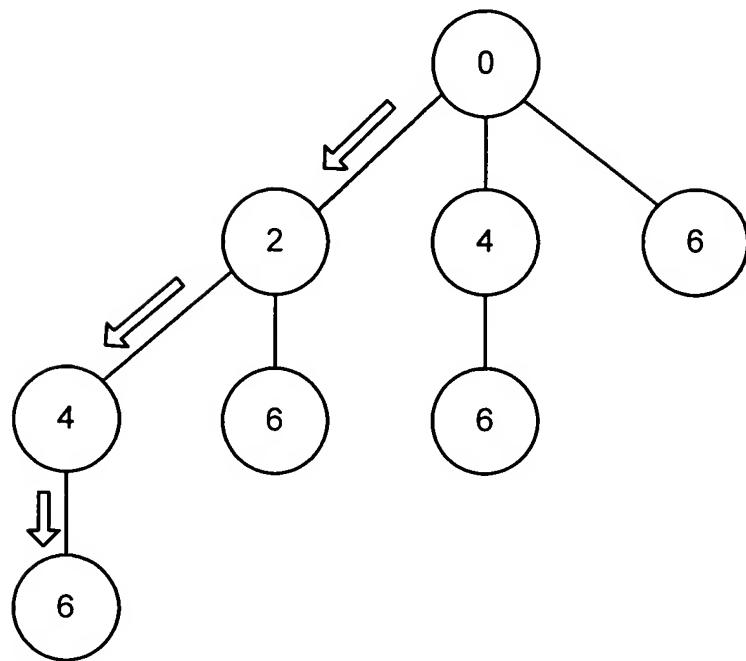


Fig. 9

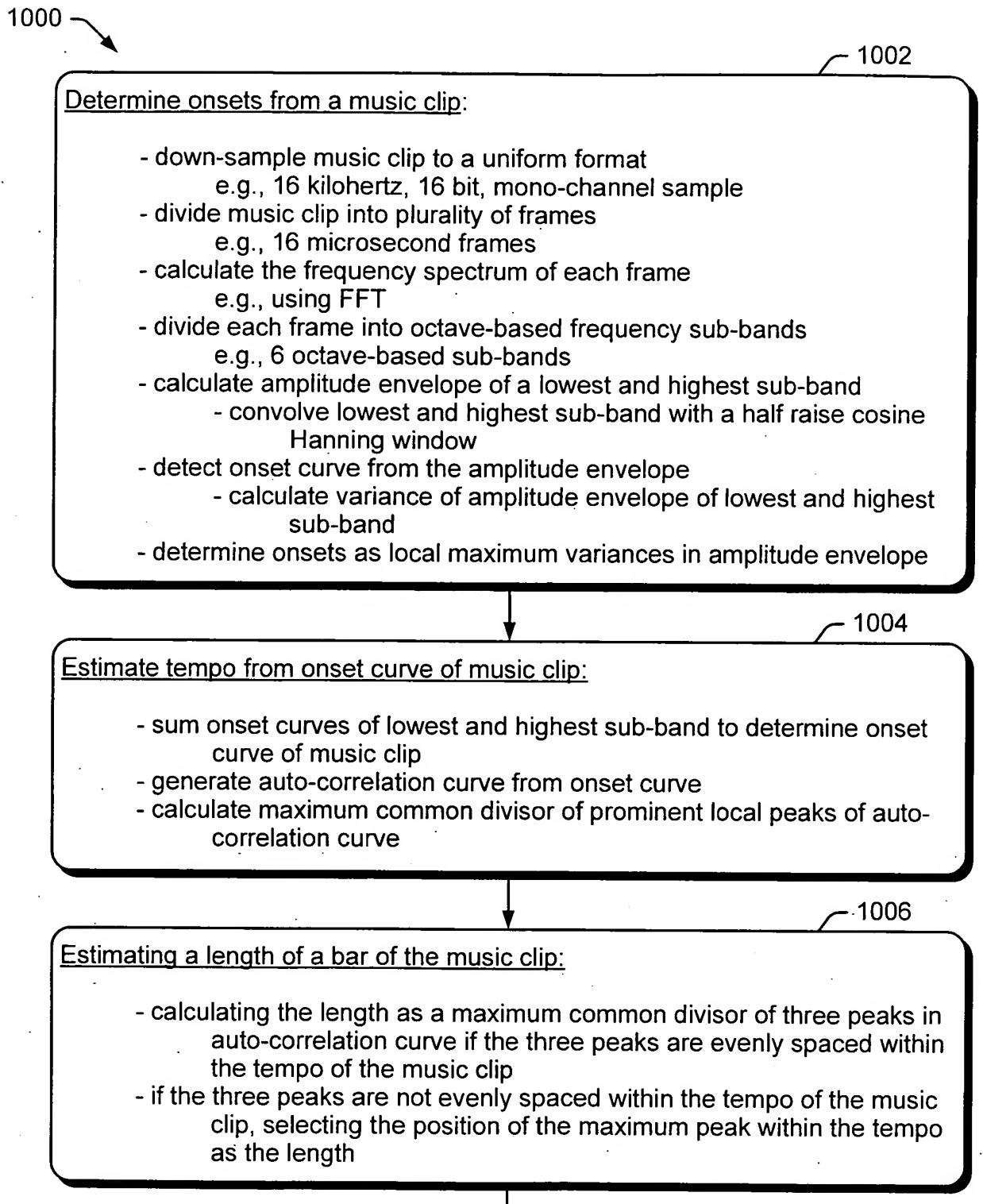


Fig. 10

To Block 1008, FIG. 11

FROM BLOCK 1006, FIG. 10

1008

Determine beat candidates from onsets:

- calculate a beat confidence for each onset
 - represent rhythm pattern of music clip with beat pattern template
 - match beat pattern template along onset curve of music clip
- detect beat candidates from onsets based on onset beat confidence
 - adaptively set a threshold
 - compare beat confidence for each onset to threshold

1010

Detect segments of beat sequence to determine parts of sequence synced to actual beat and parts of sequence not synced to actual beat:

- find at least 3 continuous beat candidates having intervals of one or more tempos
- confirm the at least 3 continuous beat candidates as actual beats synced to the actual beat phase

1012

Rectify segments of beat sequence that are out-of-sync with actual beat phase:

- build phase tree from the segments
 - determine if a subsequent segment shares the same beat phase as a current segment
 - if the subsequent segment shares the same beat phase as the current segment, insert subsequent segment into phase tree as a child segment of the current segment
 - iterate previous 2 steps until all segments are processed
- search phase tree to determine a largest sequence of segments that share a same beat phase
- assuming that largest sequence of segments are synced segments that follow the actual beat phase
- assume that all segments that are not synced segments are out-of-sync segments
- rectify the out-of-sync segments
 - follow the actual beat phase for the out-of-sync segments

Fig. 11